Argonne National Laboratory Learning Lab – Power Up!
NGSS Standards
High School (9th – 12th Grade)

Science Principles
• All human activity has short and long-term consequences. • New technologies can have unintended results. • Energy is not created or destroyed.

High School Performance Expectations
HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. **HS-PS3-3:** Design, build, and refine a device that works within given constraints to convert one form of energy into another.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
HS-Asking Questions and Defining Problems: Analyze complex real-world problems by specifying criteria and constraints for successful solutions. HS-Constructing Explanations and Designing Solutions: Support explanations and designs with multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.	HS-Defining and Delimiting Engineering Problems: Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account…. HS-Conservation of Energy and Energy Transfer: Although energy cannot be destroyed it can be converted to less useful forms such as thermal.	HS –Influence of Science, Engineering and Technology on Society and the Natural World: New technologies can have deep impacts including some that were not anticipated. Analysis of costs and benefits is a critical aspect of decisions about technology.

NGSS Lead States. 2013. *Next Generation Science Standards: For Sates, By States*. Washington, DC: The National Academies Press.

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